

## **AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

### **Listing of Claims:**

1           1. (Currently amended) A microrelay, comprising:  
2           a first signal line;  
3           a second signal line;  
4           a contact head configured to make an electrical connection between the  
5 first signal line and the second signal line; and  
6           an electro-thermal actuator coupled to the contact head and configured to  
7 laterally displace the contact head so that the closing action of the contact head is  
8 parallel to the plane of a semiconductor wafer upon which the microrelay is  
9 fabricated;  
10          wherein the contact head and associated portions of the first and second  
11 signal lines are covered with a layer of sputtered gold, and wherein a partial  
12 release operation was performed at the closing gap to ensure the separation of  
13 sputtered gold on the contact head sidewall and the signal lines.

1           2. (Original) The microrelay of claim 1,  
2           wherein the electro-thermal actuator comprises a substantially V-shaped  
3 beam;  
4           wherein thermal expansion caused by current flowing through the  
5 substantially V-shaped beam actuates the contact head to make the electrical  
6 connection.

1           3. (Original) The microrelay of claim 1, wherein the electro-thermal  
2 actuator comprises a substantially V-shaped central beam cascaded between two  
3 substantially V-shaped side beams, which increase the displacement of the  
4 substantially V-shaped central beam during actuation.

1           4. (Original) The microrelay of claim 1, wherein the electro-thermal  
2 actuator is comprised of:  
3           silicon;  
4           polysilicon;  
5           nickel; or  
6           tungsten.

1           5 (Canceled).

1           6. (Original) The microrelay of claim 1, wherein the contact head is  
2 coupled to the electro-thermal actuator through an insulator.

1           7. (Original) The microrelay of claim 6, wherein the insulator is comprised  
2 of:  
3           silicon nitride; or  
4           silicon dioxide.

1           8 (Canceled).

1           9. (Currently amended) The microrelay of claim 1, wherein the shape of  
2 the contact head is:

3           square;  
4           angled; or

5 rounded.

1 10. (Original) The microrelay of claim 1, wherein the microrelay is  
2 fabricated using a process that involves:

3 deposition of low-stress silicon nitride as isolation;  
4 deposition and patterning of sacrificial silicon dioxide;  
5 deposition and patterning of a low-stress silicon nitride connection;  
6 deposition and patterning of polysilicon;  
7 a partial release operation;  
8 sputtering and lift-off of gold; and  
9 a full release operation.

1 11. (Original) The microrelay of claim 1, wherein the microrelay is an  
2 element in an array of microrelays.

1 12. (Currently amended) A microrelay, comprising:

2 a first signal line;  
3 a second signal line;  
4 a contact head configured to make an electrical connection between the  
5 first signal line and the second signal line; and  
6 an electro-thermal actuator coupled to the contact head and configured to  
7 laterally displace the contact head so that the closing action of the contact head is  
8 parallel to the plane of a semiconductor wafer upon which the microrelay is  
9 fabricated;

10 wherein the electro-thermal actuator comprises a substantially V-shaped  
11 beam, wherein thermal expansion caused by current flowing through the  
12 substantially V-shaped beam actuates the contact head to make the electrical  
13 connection;

14        wherein the contact head and associated portions of the first and second  
15        signal lines are covered with a layer of sputtered gold, and wherein a partial  
16        release operation was performed at the closing gap to ensure the separation of  
17        sputtered gold on the contact head sidewall and the signal lines.

1            13 (Canceled).

1            14. (Original) The microrelay of claim 12, wherein the contact head is  
2        coupled to the electro-thermal actuator through an insulator.

1            15 (Canceled).

1            16. (Currently amended) The microrelay of claim 12, wherein the shape of  
2        the contact head is:

3            square;  
4            ~~angled~~; or  
5            rounded.

1            17-20 (Canceled).